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(51) INT CL<sup>6</sup>  
**B27C 7/00**

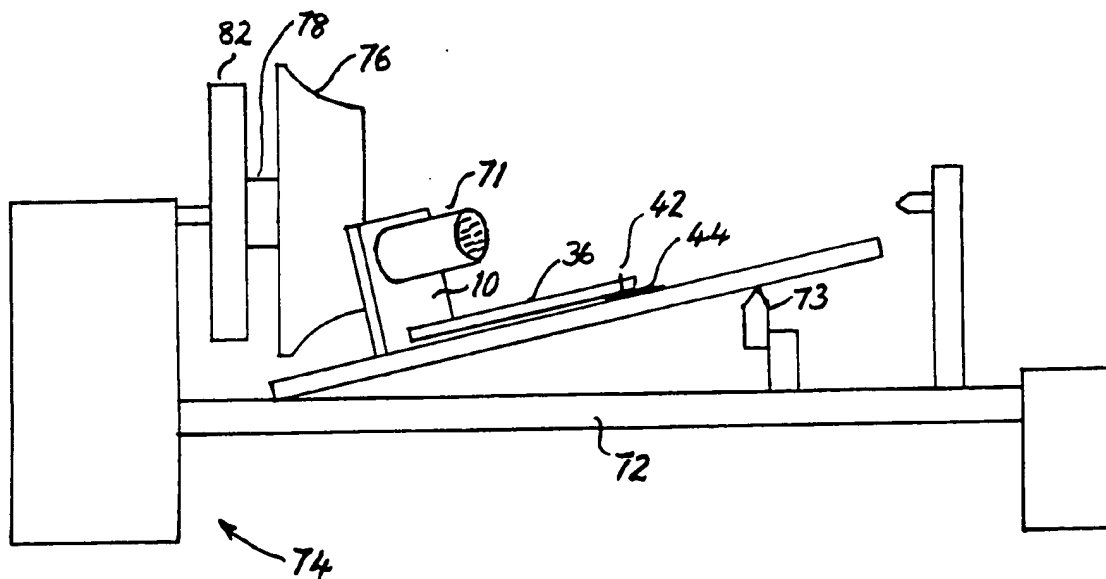
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**U1S S1208 S1787**

(56) Documents cited  
**GB 2192820 A** **GB 2062540 A** **GB 1103967 A**  
**GB 1079344 A** **US 4899793 A** **US 4628975 A**  
**US 4491162 A**

(58) Field of search  
UK CL (Edition K) **B3T, B5L**  
INT CL<sup>5</sup> **B23B, B23Q, B27C**

(54) **Tool jig**

(57) The jig for use in machining a workpiece (76) includes a base board (70) disposed beneath the workpiece. A cutting tool (71) for example, a router, is held in a support device (10) e.g. an angle plate which can be slid across the base board. Guide means (36, 44, 90) are used to guide the sliding movement in a predetermined manner thereby cutting the workpiece in a predetermined manner. The plate may slide against a template or have an extendable arm coupled to an adjustable pivot (44) on the baseboard (70). The board may be flat on the machine or be angled as shown.



**FIG. 4**

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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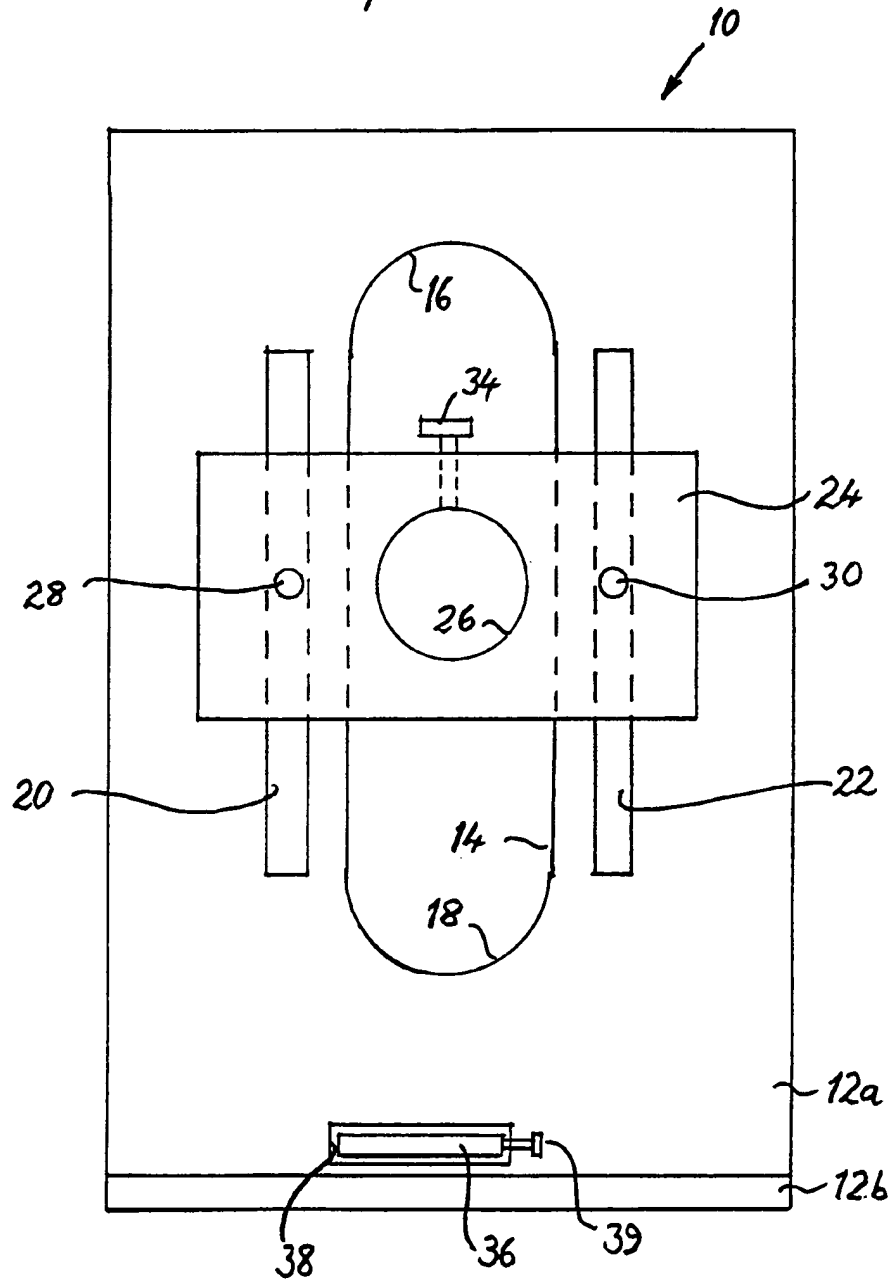


FIG. 1

FIG. 3

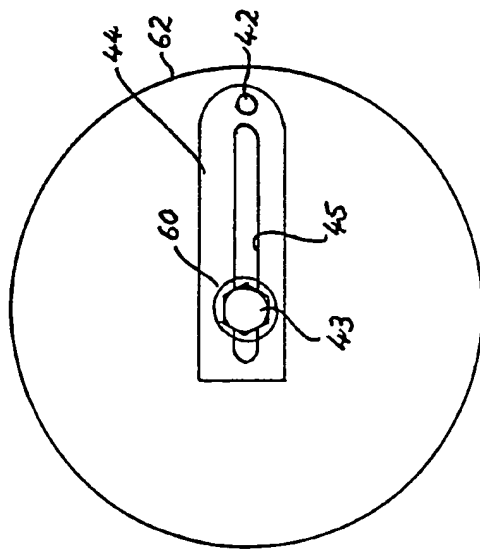
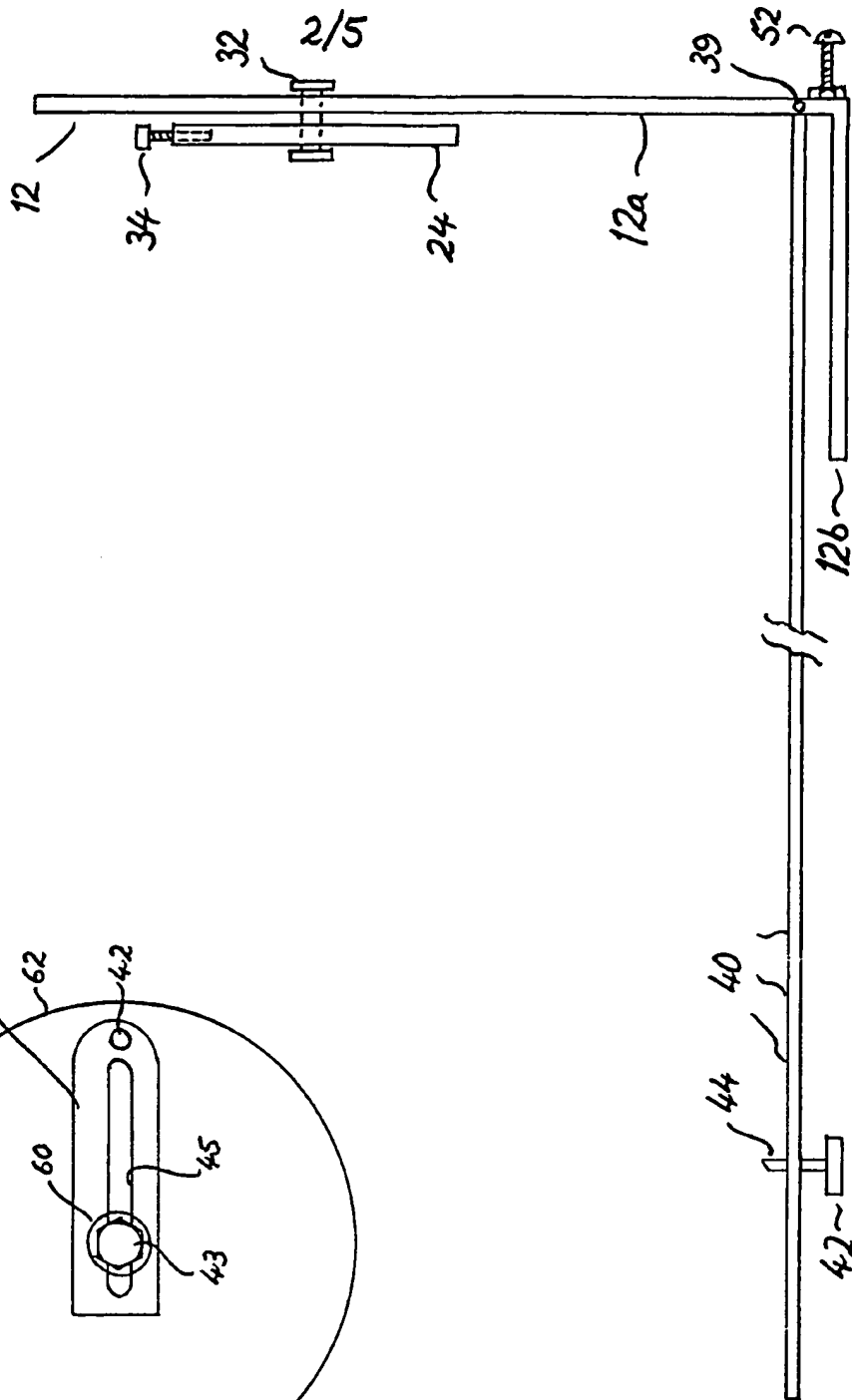


FIG. 2



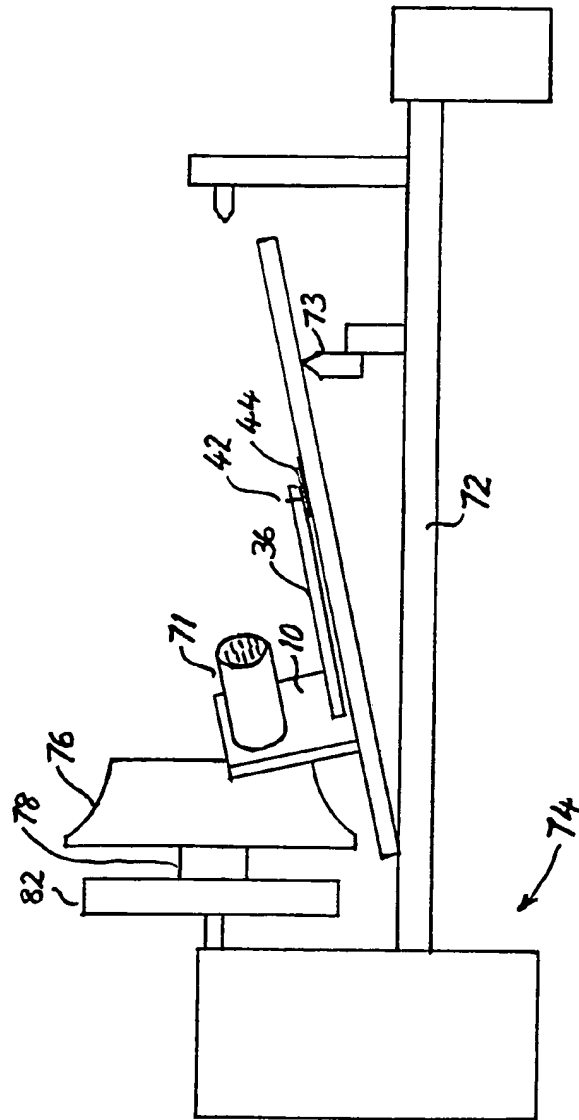


FIG. 4

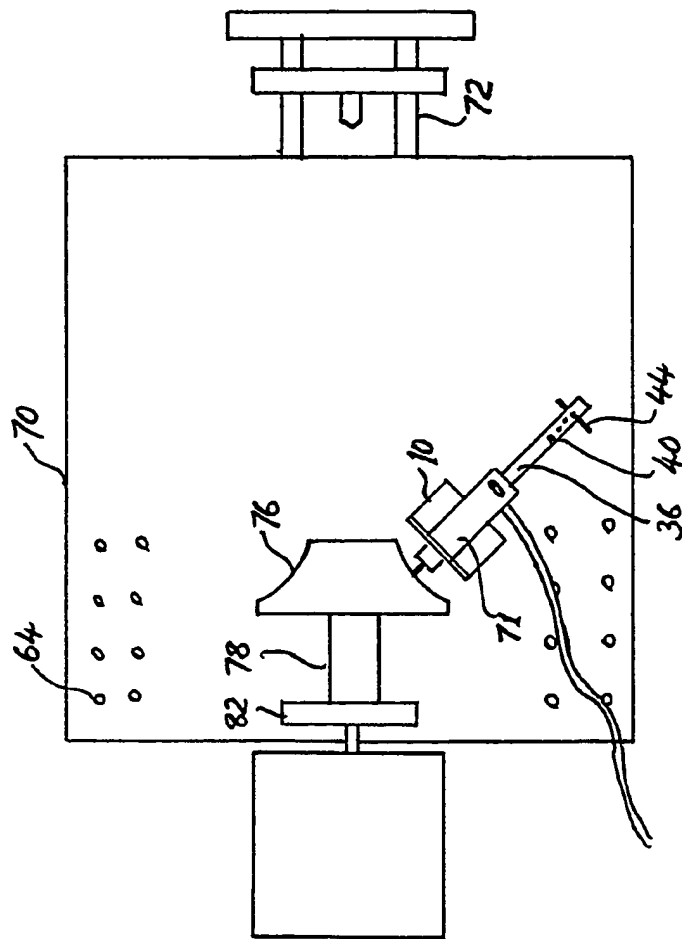


FIG. 5

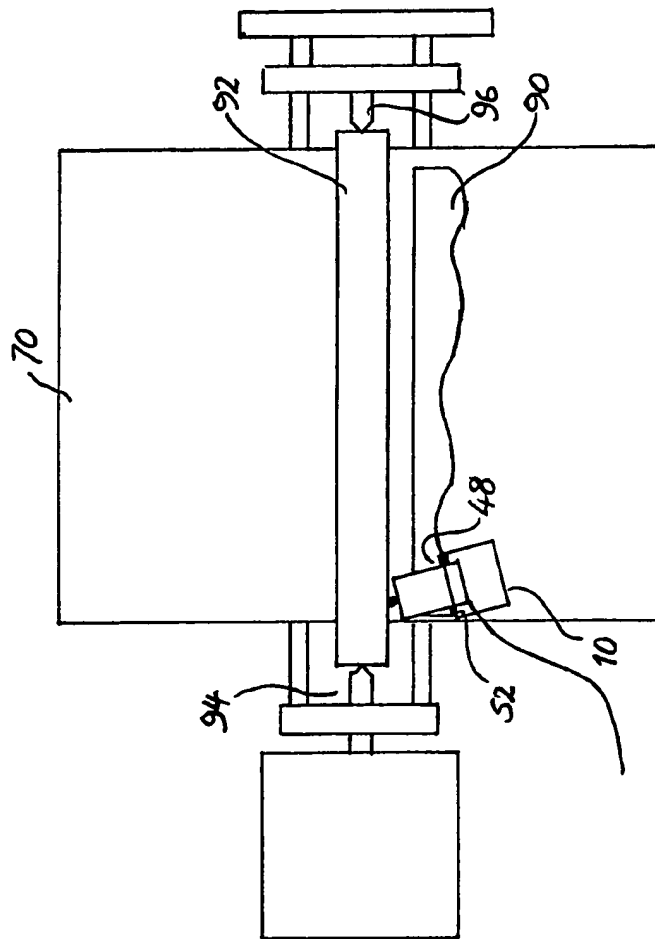


FIG. 6

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TOOL JIG

This invention relates to the making of grooves or recesses in workpieces, for example turned workpieces, such as bowls and chair legs.

In some instances it is desired to make long sweeping recesses which run, say, from the base of a wooden bowl to the edge. To obtain such recesses using a conventional hand routing tool would require an exceptionally steady hand, and would take a skilled workman a considerable time to carry out. In addition it would be difficult to repeat the recesses symmetrically around the bowl.

One object of the present invention is to provide a jig which will assist in overcoming at least some of the problems encountered using a hand-held router.

According to one aspect of the present invention there is provided a jig for use in machining a workpiece, comprising, a base board disposed beneath the workpiece; a support device slidable across the base board; a tool mounted on the support device and having a cutting bit projecting therefrom; and guide means for guiding the sliding movement of the support device across the base board in a predetermined manner so that the cutting bit cuts the workpiece in a predetermined manner.

Reference will now be made by way of example to an embodiment of the invention as shown in the accompanying drawings, in which:-

- Figure 1 is a front view of a tool holder;
- Figure 2 of a side view of the Figure 1 tool holder;
- Figure 3 is a top view of part of the tool holder;
- Figure 4 is a side view of the tool holder in use on a lathe;
- Figure 5 is a top view of the tool holder and lathe; and
- Figure 6 is a top view illustrating an alternative use for the tool holder.

The holder 10 comprises an angle plate 12 which has a vertical limb 12a and a base 12b. The angle plate has an elongate slot 14 substantially in the centre of the vertical limb 12a. The slot has upper and lower curved portions 16 and 18, respectively. Two narrow elongate slots 20 and 22 run parallel to slot 14 and are of approximately the same length as the straight part of slot 14. A

substantially rectangular clamp plate 24 is mounted against the vertical limb 12a. The clamp plate has a circular hole 26 which is located substantially in the centre of the plate and corresponds with the slot 14. Two bolt holes 28 and 30 are also located on the clamp plate, such that they align with the slots 20 and 22, respectively. The clamp plate is held against the angle plate by two nuts and bolts 32 which pass through the bolt holes and the slots. When the nuts and bolts are loose the clamp plate may be moved up and down the vertical limb and when the nuts and bolts are tightened the clamp plate is held rigidly against the vertical limb in a chosen position. In use a routing tool for example is located in the circular hole 26 and held rigidly by a locking screw 34. A locating collar, not shown, may alternatively be used to fix the tool in the holder. The diameter of the hole 26 or the collar may be about 43mm for use with a routing tool having a standard 43mm diameter mounting neck.

An elongate radius arm 36 extends from a slot 38 in the vertical limb 12a of the angle plate. A locking screw 39 may be used to hold the arm 36 in place. At its end farthest from the angle plate, the arm includes a series of holes 40. A pivot device 44 shown in more detail in Figure 3 has a pivot post 42 which may be passed through one of the holes 40. The pivot device 44 includes an elongate slot 45 which is used with a nut and bolt 43 to anchor the pivot device 44 to a wooden base board 70. For each hole 64 in the base board 70, the pivot post 42 can be located at any position between the concentric circles 60, 62 shown in Figure 3. The radius arm may be angled for certain applications. The angle may typically be about 15°. The holes on the radius arm may include one or more slots (not shown) in addition to or instead of holes 64.

Referring to Figures 4 and 5, in use, the tool holder 10 holding a tool 71 preferably rests on the base board 70 which in turn is fixed to the bed or rails 72 of a wood lathe shown generally at 74. A wooden bowl 76, for example, may be held in the chuck 78 of the lathe. In order that recesses may be made on an external surface of the bowl, the tool holder is located on the flat surface so that the tool is directed towards the chuck. The bolt is passed through the slot 45 of pivot device 44 to anchor it to the base board thereby forming a pivot point for the radius arm 36. The tool holder may then be moved by sliding it



in an arc over the base board so that the tool engages the wooden bowl, and cuts the recess in the required manner. The radius of the arc is adjustable by choice of the appropriate hole 40 of the radius arm 36. The centre of rotation is adjustable by the choice of hole 64 in the  
5 base board 70 through which the bolt 43 is placed, the position of the bolt 43 along the slot 45 and the orientation of the pivot device 44.

When the tool is held and used in this manner the locus of the cutting tip of the routing tool will be in a plane parallel to the central axis of the bowl.

10 The base board 70 may be inclined, for example, so that the edge farthest from the chuck is raised above the bed of the lathe, for example, using the tool rest 73 of the lathe, as shown in Figure 4. In this case, the routing tool can cut more interesting swirls from the base to the edge of the bowl.

15 In either of the above cases the chuck may be indexed using an indexing head 82, in order that a series of recesses can be perfectly formed, separated by a constant angle around the bowl.

Referring to Figures 2 and 6, rather than employing the radius arm 36, the lower edge of the vertical limb 12a of the tool holder may  
20 have two studs 52, 54, which in use may be run along the edge of a template 90, thereby routing, say, a chair leg 92 which is held between the two centres 94, 96, of the lathe. The template may be screwed to the base board 70 of the lathe at the required position, as shown.

There may be a strengthening rib located on the angle plate  
25 running between the vertical limb 12a and the base 12b.

The size and relative positions of the component parts of the holder are only one example of possible ways in which the holder may be configured.

The inside surface of the bowl may also be routed to produce  
30 internal recesses. In this case, the tool holder is anchored at a different hole 64 on the base board 70.

It will be appreciated that the routing tool may be used to machine other articles, which may be of materials other than wood, such as laminates or the like. The jig may be adjusted to receive any type  
35 of routing tool or other appropriate tool.

It will be further appreciated that the tool held in the holder may be varied depending upon the application required and the

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workpieces being machined.

CLAIMS

1. A jig for use in machining a workpiece, comprising: a base board disposed beneath the workpiece; a support device slidable across the  
5 base board; a tool mounted on the support device and having a cutting bit projecting therefrom; and guide means for guiding the sliding movement of the support device across the base board in a predetermined manner so that the cutting bit cuts the workpiece in a predetermined manner.  
10
2. A jig according to claim 1, further comprising a lathe for supporting the base board and the workpiece.
3. A jig according to claim 1 or 2, wherein the lathe has an  
15 indexing mechanism so that a plurality of equally spaced cuts can be made in the workpiece.
4. A jig according to claim 1, 2 or 3, wherein the guide means is a radius arm extending from the support device and pivoted on the base  
20 board.
5. A jig according to claim 1, 2 or 3, wherein the guide means is a template which is secured to the base board and against which the support device can be traversed.  
25
6. A jig according to any preceding claim, wherein the bit projects parallel to the base board.
7. A jig for machining a workpiece, substantially as described with  
30 reference to the accompanying drawings.

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**ents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

9104378.6

**Relevant Technical fields**

(i) UK CI (Edition K ) B5L; B37

(ii) Int CI (Edition 5 ) B27C; B23B; B23Q

**Databases (see over)**

(i) UK Patent Office

(ii)

Search Examiner

R BINDING

Date of Search

21 NOVEMBER 1991

Documents considered relevant following a search in respect of claims

1 TO 7

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2192820 A (BECK)	1,2, 4 to 6
X	GB 2062540 A (TREVOR) see especially Figures 1 to 5 (equivalent to WO 80/02814)	1,4,5
X	GB 1103967 A (ABLETT)	1
X	GB 1079344 A (MATTEL) see especially Figures 1 to 3	1,2,5,6
X	US 4899793 A (SNYDER)	1,2,5,6
X	US 4628975 A (HORN)	1,2,5,6
X	US 449 <sup>1</sup> 162 A (HOLDAHL)	1,2,5,6

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Category	Identity of document and relevant passages	Relevant to claim(s)

**Categories of documents**

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

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EUR-CL (EPC): B23Q009/00 ; B23Q035/00, B27C005/00 , B27C007/00 , B27C007/06

ABSTRACT:

CHG DATE=19990617 STATUS=O>A lathe (72) is provided with a base board (70) fixed at an adjustable angle on the lathe bed, a support block (10) slidable across the base board, a routing machine (71) mounted on the support block, and a radius arm (36) or template for guiding the sliding movement of the support block so that the routing machine can cut a workpiece stationarily supported by the lathe in a predetermined manner.